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June 1961

JOINT PHOTOGRAPHIC INTELLIGENCE BRIEF

# ORE MILL CONSTRUCTION KACHKANAR MINING DISTRICT, USSR



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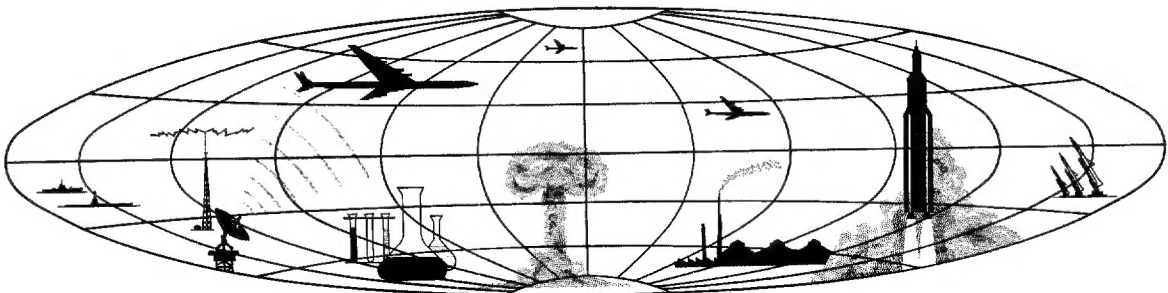
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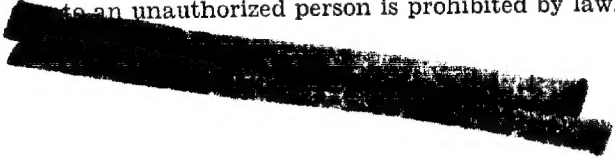
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## ORE MILL CONSTRUCTION

### KACHKANAR MINING DISTRICT, USSR

25X1D A new major ore mill and town site, the Kachkanar Iron Ore Concentration Combine (58-41N 59-30E), is located in the iron-mining and possible uranium-mining district\* around Kachkanar Mountain in the Central Urals. The Kachkanar Combine is approximately 48 nautical miles (nm) north of Nizhniy Tagil, the ultimate destination of the iron concentrates. The mill is publicized as an iron ore concentration plant and no references are made to the possibility of processing uranium ore. Mill construction photographed in [REDACTED] showed a plant which will probably be capable of producing at least three kinds of ore concentrates in quantity.

Possible facilities for producing small quantities of uranium concentrates could not be identified because of the early stage (possibly second year) of construction. Facilities for the beneficiation of uranium would be difficult to identify because of the small quantities of uranium concentrates produced. Evidence of uranium mining or processing elsewhere in the district could not be established from available photography, which is of poor quality.\*\*

\* The Kachkanar district is known to bear low-grade titaniferous iron ores (magnetite, the chief iron mineral, and some ilmenite). A probably censored Soviet study of the mineralogy of Kachkanar Mountain and nearby Gusev Mountain includes no mention of titaniferous uranium-bearing minerals. 1/ Published Soviet studies discussing uranium-bearing minerals do not specify the locations of such deposits in the Soviet Union.

\*\* Because of the poor quality of the photography a former prisoner's report of a railway connecting Valerianovsk and Nizhnyaya Tura for the shipment of uranium ores and supplies could not be verified. 2/

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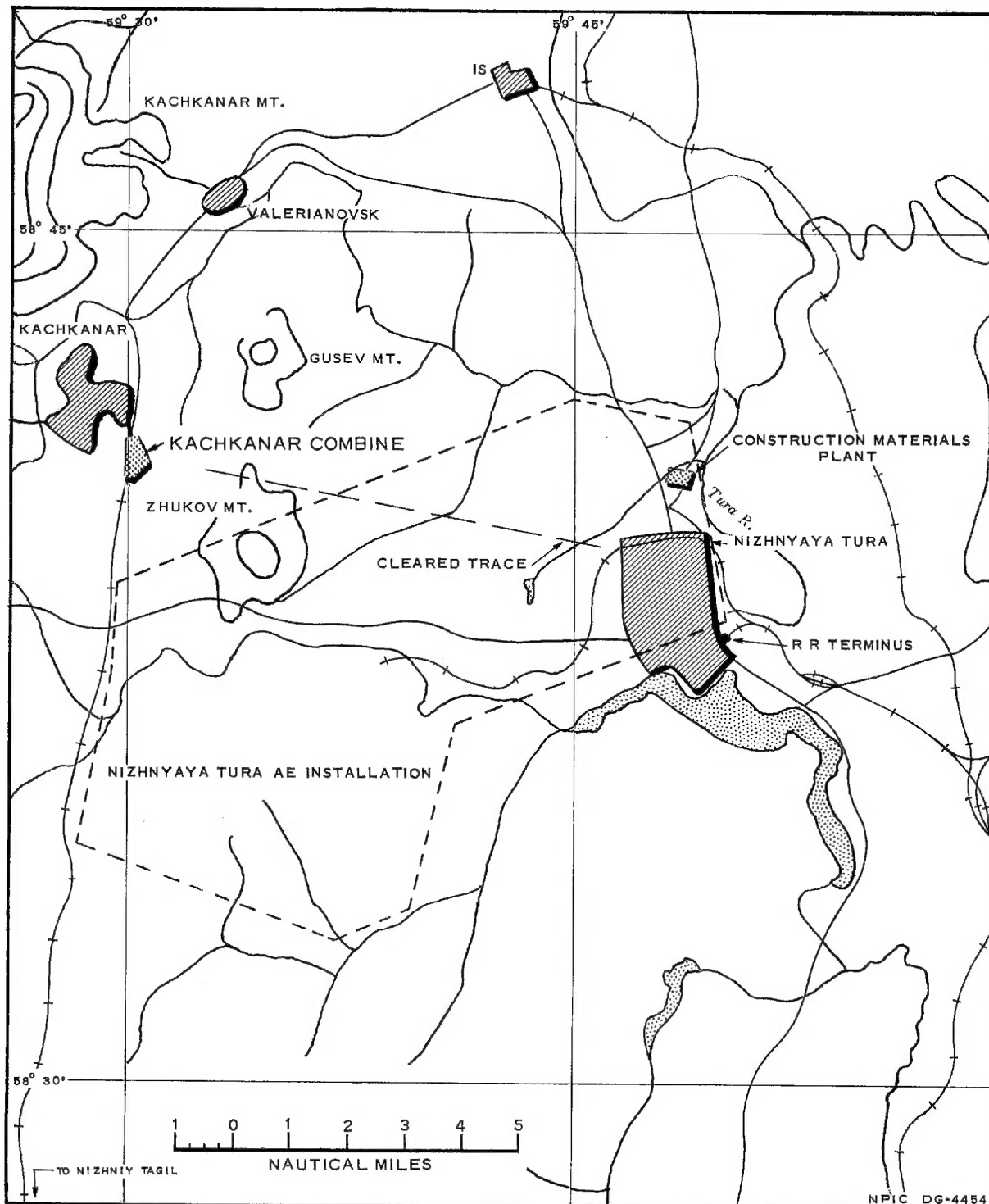
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LOCATION OF KACHKANAR IRON ORE CONCENTRATION COMBINE.

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Description of the Kachkanar Mill Site

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The site of the Kachkanar mill is a cleared and fenced area approximately 4,500 by 1,500 feet. At the time of photography, the site was partially levelled by rough grading and six large structures and numerous small buildings were in various stages of construction. The northeastward slope of the site would allow gravity movement of heavy mineral concentrates through the mill buildings. Roadside ditches also provided drainage for the building sites. A gravel construction road and a crudely laid narrow gauge railway serve the site. The Kachkanar town site, occupying a ridge west of the mill, was also under construction. The town is planned to house approximately 25,000 people whenever the first phase of the mining and concentrating operations is in full production. 3/

Three probable mill buildings were partially erected near the center of the mill site. At the north end of one building three bin-like rooms were partially roofed. The gray tone of the ground outside the building shells appeared to continue inside, indicating that neither flooring nor footings for columns to support roofs or machinery had been constructed. Five silos and a large building shell with an attached tall bin-type structure were arranged along a probable future railway siding. Opposite the bin-type structure was a long, rectangular, trenched building site with a center row of small footings. Neither conveyors nor exhaust stacks have been constructed anywhere.

A multistory office building of reinforced concrete and three probable warehouses of panel wall-construction were being built along the west side of the mill site. In the southwest corner of the site were two long, roughly rectangular excavations for an undetermined purpose. Each excavation has an access ramp. No activity was observed in the excavations.

Two long, rectangular building sites were located east of the two excavations. The north site has three rows of footings, the south site has five rows of footings.

There are two construction materials yards, one in the northeast, the other in the southwest sections of the mill site. Each construction materials yard consists of a shop building, a motor pool, and open

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storage for equipment and building supplies. In the southwest yard is a rectangular rail-served building which is probably used for the assembly of machinery and fittings.

#### Indications of Ore-Processing Plans

Because of the early stage of construction at the time of photography building uses could not be definitely established and the plan for the flow of ore through the plant could not be outlined. At this stage of construction, changes in the planned mill circuits could still be made.

None of the footings necessary for heavy equipment, such as grinding mills, electromagnetic separators, or jigging tables, were observed in the mill construction. The construction of at least three bins within a mill building seems to confirm plans for producing at least three concentrates.

According to a report on tests for the milling of iron ores at Kachkanar conducted by the Mineral Experiment Station at Sverdlovsk, the ore will be ground to a maximum size of 2 mm in diameter and passed through a series of five electromagnetic separators and a series of four jigs. 4/ Three types of concentrates will be produced: iron, titanium, and mixed concentrates.

Soviet publications indicate that low-grade titaniferous magnetite iron ore is to be mined by open pit method on Gusev and Kachkanar Mountains. Plans announced in 1958 called for an ultimate annual treatment capacity of 33 million tons of crude ore. The ore from Gusev Mountain will be transported to the Kachkanar mill by narrow-gauge railway. 3/ The ore from Kachkanar Mountain will be crushed at the open pit by two large primary (coarse) crushers and then transported to the mill site by conveyors over a route yet to be selected. 5/

#### The Kachkanar Region

The Kachkanar Combine is served by a branch rail line which leads north from Aziatskaya Station on the Perm-Nizhniy Tagil rail line, and by a road from Valerianovsk, 5 miles north. A trace, running 10 miles east-southeast from the mill site to the city of Nizhnyaya Tura, has

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been cleared through the forest. Presumably a power line from Nizhnyaya Tura is to be erected in the trace, although no poles or masts were observed.

#### REFERENCES



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